

REMARKS

In the Office Action, the Examiner rejected Claims 1-30, which are all of the pending claims, under 35 U.S.C. §103 as being unpatentable over the prior art, primarily U.S. Patent Application publication no. 2002/0116371 (Dodds, et al.) and U.S. Patent 6,604,100 (Fernandez, et al.). In particular, Claims 1-4, 8, 10, 13, 14, 17, 19, 20 and 27-30 were rejected as being unpatentable over Dodds, et al. in view of Fernandez, et al; and Claims 5-7, 9, 11, 12, 15, 16, 18, 22, 23, 25 and 26 were rejected over Dodd, et al. in view of Fernandez, et al. and further in view of U.S. Patent publication no. 2003/0120665 (Fox). Claim 21 was rejected as being unpatentable over Dodd, et al. in view of Fernandez, et al. and further in view of U.S. Patent publication no. 2003/0212660 Kerwin), and Claim 24 was rejected as being unpatentable over Dodd, et al. in view of Fernandez, et al, Fox and Kerwin.

The Examiner, in the Office Action, also objected to the drawings and to the specification, and objected to informalities in Claims 16 and 22. In addition, Claims 7-9 and 19 were rejected under 35 U.S.C. §112 as being indefinite, and the Examiner rejected Claims 29 and 30 under 35 U.S.C. §101 as being directed to non-statutory subject matter.

In objecting to the drawings, the Examiner noted that Figures 1 and 2 should be designated as “Prior Art,” and that in Figure 3C, reference characters “326” and “327” have both been used to designate a network. The Examiner also noted that several reference characters shown in Figures 1, 2, 3C, 4, 6, 7, 8B, 10A, 10B and 10C are not mentioned in the specification.

In response, Applicants are submitting herewith corrected Figure 1 and 2, in which both of these Figures are labeled as “Prior Art.” In addition, the specification is being amended to add the missing reference numbers from the Figures, care being taken to avoid adding new matter.

In particular, 108 is being added to page 8, 201-205, 210 and 211 are being added to page 9, and 112 is being added to pages 10 and 11. 326 is being added to page 12, 420-427 are being added to page 14, and 604 is being added to page 17. Pages 26 and 28 are being amended to include the reference numerals 706 and 854, page 30 is being amended to include the reference numeral 1051, and page 31 is being amended to include the reference numerals 1057 and 1082.

With particular regard to Figure 3C, it is noted that this Figure shows two networks, referenced at 326 and 327. Since the Figure shows two networks, it is appropriate to have the two reference numbers, each of which references one of the networks, in the Figure.

With the above-discussed changes, it is believed that all the reference numbers shown in the drawings are also referred to in the specification, and the Examiner is, accordingly, asked to reconsider and to withdraw the objection to the drawings.

With respect to the specification, the Examiner objected to the use of the reference number “101” in paragraphs 24 and 25, which discuss network 200 of Figure 2. To address this objection, in these paragraphs, “101” is being changed to “201, 202 and 203,” which reference specific workstations shown in Figure 2.

In addition, as requested by the Examiner, the specification has been carefully reviewed, and several minor informalities therein are herein being corrected.

In view of these changes discussed above, the Examiner is also asked to reconsider and to withdraw the objection to the specification.

Claims 16 and 22 are being amended to overcome the Examiner’s objections to these claims. In Claim 16, the second occurrence of “first run-time object” is being deleted, and Claim 22 is being amended to be dependent from Claim 16 rather than Claim 17. Claim 16

describes a first run-time object, and thus the reference to a second run-time object in Claim 22 is now appropriate. Accordingly, the Examiner is asked to reconsider and to withdraw the objections to the language of Claims 16 and 22.

Also, Claims 7, 9 and 19 are being amended, as the Examiner suggested, to overcome the rejection of these claims under 35 U.S.C. §112. Specifically, in Claim 7, “second run-time object” is being changed to “first run-time object,” and in Claim 9, “the XSL transformation” is being changed to “an XSL transformation.” In Claim 19, “update/insert” is being changed to “update or insert.”

The Examiner did not raise any specific objection to the language of Claim 8, but rejected the claim because it depends on a rejected claim. Claim 8, though, does not depend from any claim that was rejected under 35 U.S.C. §112. In particular, Claim 8 depends from Claim 6, and not Claim 7.

Applicants’ Attorneys have carefully reviewed all of claims 7, 8, 9 and 19, and these claims are clear and definite and fully comply with the requirements of 35 U.S.C. 112. the Examiner is, hence, also requested to reconsider and to withdraw the rejections of Claims 7-9 and 19 under 35 U.S.C. §112.

The rejection of Claims 29 and 30 under 35 U.S.C. §101 is respectfully traversed. The Examiner, in the Office Action argued that the components of the systems claimed in claims 29 and 30 are software per se. Applicants respectfully disagree. Both of these claims describe specific structural elements. In particular, both of these claims expressly include a mapper and a retriever; and Claim 29 also includes a formatter, and Claim 30 set forth a performer. A mapper, for example, is not software per se, but instead, is, in the preferred embodiment of the invention, a processor or processing unit that is provided with the appropriate hardware or software, or

combination of hardware and software, necessary to perform the claimed function of the mapper – creating a mapping description using a markup language from a user specified set of conditions and output format. Thus, Claims 29 and 30 set forth physical structure and clearly define a physical system. The claims are, hence, a machine, within the meaning of 35 U.S.C. §101, and thus are statutory subject matter under 35 U.S.C. §101.

In light of the above remarks, the Examiner is respectfully requested to reconsider and to withdraw the rejection of Claims 29 and 30 under 35 U.S.C. §101.

With respect to the rejections of Claims 1-30 under 35 U.S.C. §103, Applicants respectfully submit that these claims patentably distinguish over the prior art because the prior art does not disclose or suggest the use of a mapping description including a user defined template identifying a defined procedure for retrieving data from the relational database, as described in independent Claims 1, 13, 27, 28, 29 and 30.

To elaborate, the instant invention, generally, relates to systems for mapping transformations between relational database management systems and XML electronic documents. As discussed in detail in the present application, both XML documents and relational databases are in very common use, and these elements are often used together by the same application. Consequently, methods for efficiently mapping between XML documents and relational databases are necessary. While procedures are known that can do this, these prior art procedures are heavily slanted towards the database schema that they support, and the XML that can be created is thus constrained by that schema.

The present invention addresses this issue by providing a middleware solution that is independent of the underlying database and treating both the relational database and the XML document structure in a balanced way. More specifically, this invention does this by

specifying a set of conditions that data to be retrieved from the relational database system must satisfy; and specifying an output format that the XML representation must satisfy.

Then, a mapping description is created from the set of conditions and the specified output format, and using a markup language. This markup language includes SQL function and XSL function, and the mapping description includes a user defined template identifying a defined procedure for retrieving data from the relational database. Data is then retrieved from the relational database using the mapping description in association with a standard database access method; and an XML object id formatted representing the retrieved data using the mapping description.

The prior art does not disclose or suggest providing the mapping description with the user defined template, as described above.

For Example, Dodds, et al. describes a procedure for assigning attributes to XML document nodes to facilitate their storage in relational databases and the subsequent retrieval and reconstruction of pertinent nodes and fragments in the order in which they occur in the original document.

As the Examiner has recognized, there are a number of important features of the present invention that are not shown in or suggested by Dodds, et al. In order to remedy this deficiency of Dodds, et al. as a reference, the Examiner relies on a number of other references, including Fernandez, et al.

Fernandez, et al. discloses a tool, referred to as the SilkRoute, for viewing and querying relational data in XML. This tool expresses mapping of relational data into SML that conforms to arbitrary document type definitions; however this tool does not have a user defined template that identifies a defined procedure for retrieving data from the relational database.

Instead, with the method and system disclosed in Fernandez, et al. the applications express the data they need as an XML query.

Independent Claims 1, 13 and 27-30 are each being amended to include the above-discussed feature of the present invention. Specifically, each of these claims, as presented herewith, describes the feature that the mapping description, which is used to retrieve data from the relational database, includes or is provided with a user defined template identifying a defined procedure for retrieving data from the relational database.

This feature is of utility because it helps to keep the transformation specification of the present invention independent of both the relational database and the application that is calling for the data from that database.

The other references of record have been reviewed, and these other references, whether considered individually or in combination, also do not disclose or suggest this aspect of the instant invention.

For instance, Fox, et al. describes an enterprise application system including a run-time transformation server, and a message broker for routing and transforming data in the form of messages between a source application and a target application.

Kerwin discloses a computer system for balancing the load to a plurality of databases in a networked environment.

Neither Fox, et al. nor Kerwin, however, discloses the feature of providing a mapping description, of the type described in Claims 1, 13 and 27-30 of the present application, with a user defined template identifying a defined procedure for retrieving data from the relational database.

As a result of the above-discussed differences between Claims 1, 13 and 27-30 and the prior art, and because of the advantages associated with those differences, Claims 1, 13 and 27-30 patentably distinguish over the prior art and are allowable. Claims 2-12 are dependent from Claim 1 and are allowable therewith; and Claims 14-26 are dependent from, and are allowable with, Claim 13. The Examiner is, accordingly, respectfully requested to reconsider and to withdraw the rejections of Claims 1-30 under 35 U.S.C. §103, and to allow these claims.

For the reasons set forth above, the Examiner is asked to reconsider and to withdraw the objections to the drawings, to the specification and to Claims 16 and 22. The Examiner is further asked to reconsider and to withdraw the rejection of Claims 7-9 and 19 under 35 U.S.C. §112, the rejection of Claims 29 and 30 under 35 U.S.C. §101, and the rejections of Claims 1-30 under 35 U.S.C. §103, and to allow Claims 1-30. If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is asked to telephone the undersigned.

Respectfully submitted,

John S. Sensny
John S. Sensny
Registration No. 28,757

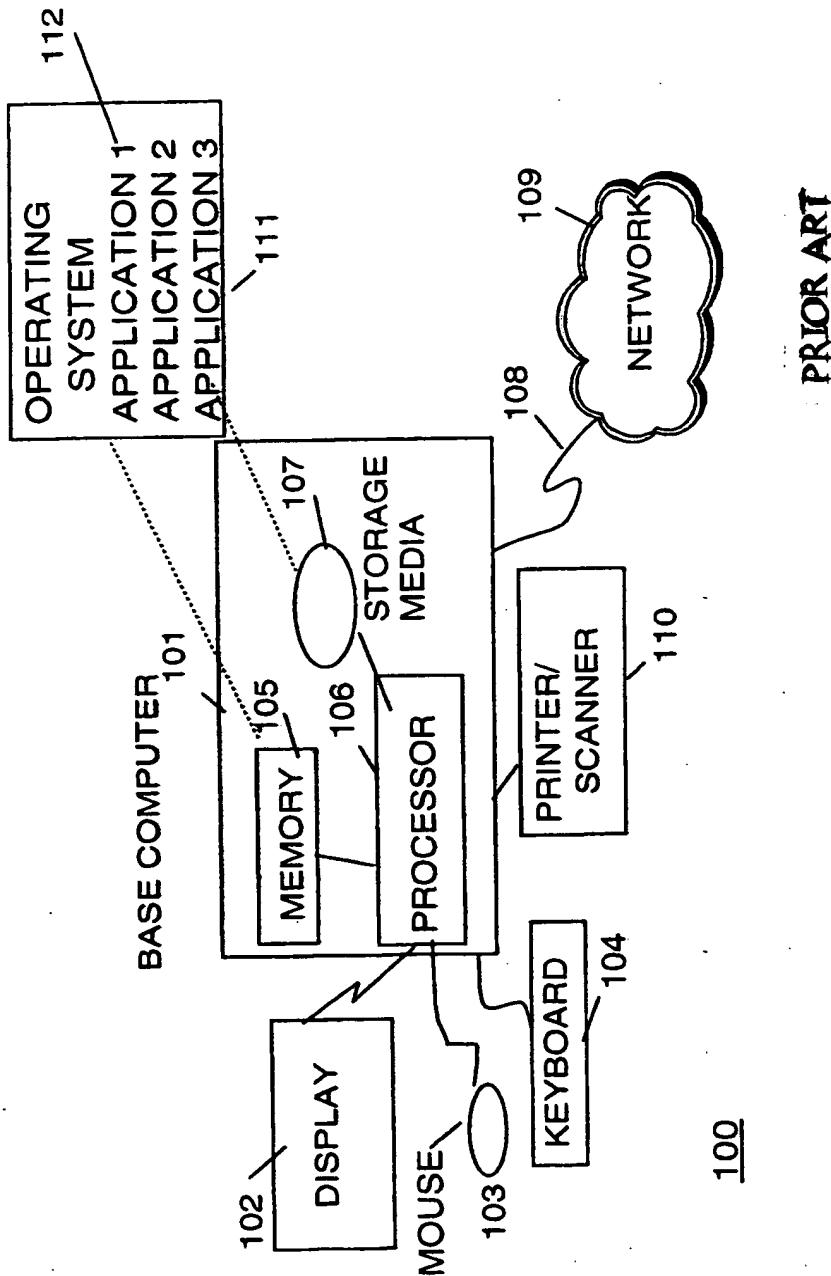
Scully, Scott, Murphy & Presser, PC
400 Garden City Plaza-Suite 300
Garden City, New York 11530
(516) 742-4343

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Attachment: Two (2) Replacement Sheets
Two (2) Annotated Sheets

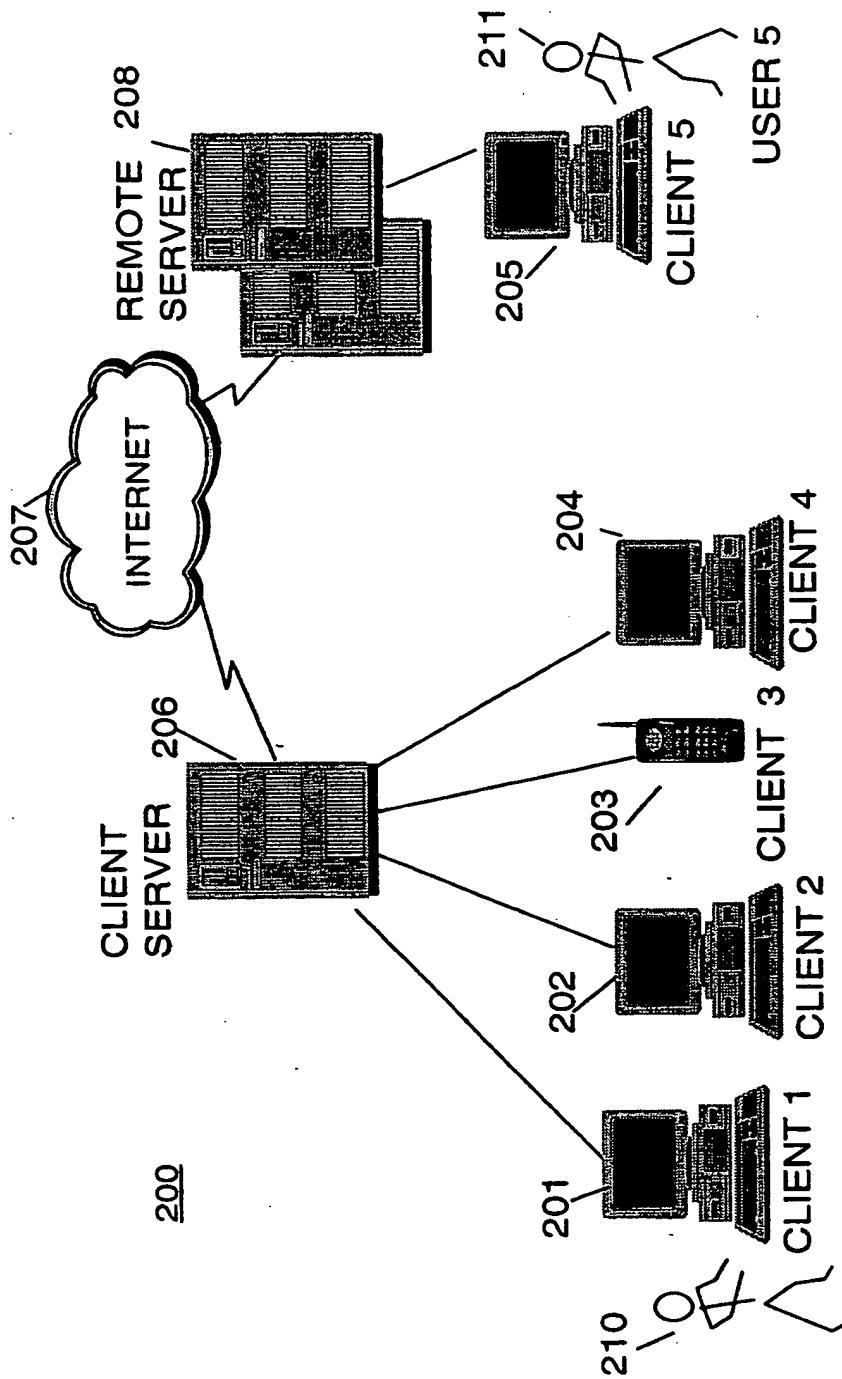
AMENDMENTS TO THE DRAWINGS:

Please replace original Figures 1 and 2 with the corrected Figures 1 and 2 submitted herewith.



PRIOR ART

FIG. 1



PRIOR ART

FIG. 2

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